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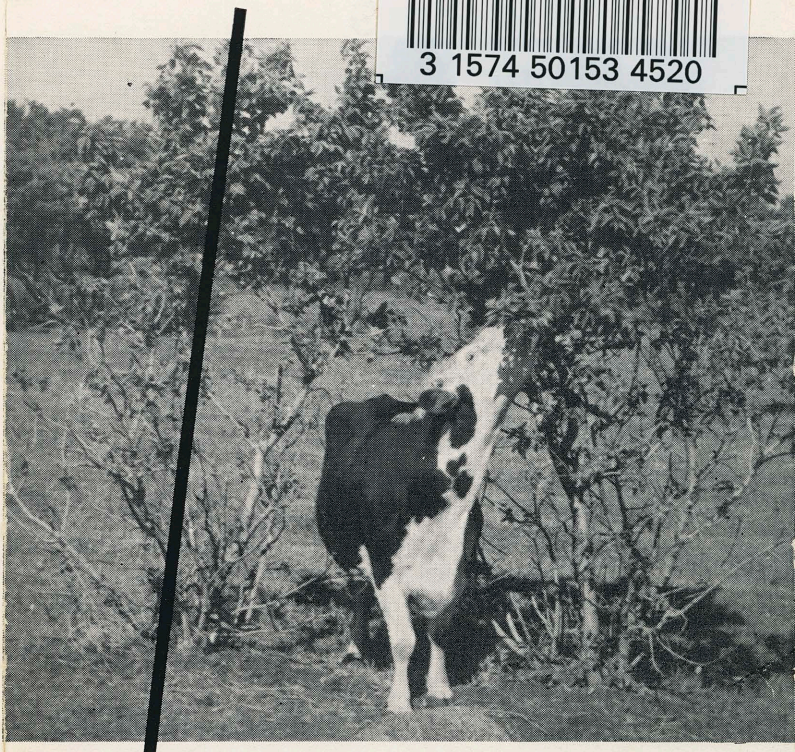

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GRAZING RUINS SHELTERBELTS

by Jim Ferrell, Extension Forester

Trees and livestock don't mix! Grazing animals can destroy a tree planting as certainly as fire. The only difference is that grazing takes a little longer. Studies in South Dakota and in other states prove that tree plantings start to go downhill as soon as livestock is turned into them. This applies to both young and old plantings.

Damage is caused by packing the soil, browsing and breaking branches, and rubbing against the trees. Killing off the lower limbs and underbrush allows wind and snow to blow through the shelterbelt.

GRAZING PACKS THE SOIL

Contractors have found that the use of sheep's-foot roller is the most efficient way to pack soil. Constant trampling by livestock has the same result. Packing the soil kills out the fine feeder roots that lie near the surface. Many surface roots are also killed through soil erosion. These surface roots are the only ones that can take advantage of light rains. Packed soil causes much of the rainfall to be lost through evaporation and run-off.

Soil samples taken in three South Dakota shelterbelts show the damaging effects of grazing. Each of these shelterbelts was divided by a lane, with stock permitted on one side and excluded from the other. Soil in the ungrazed side of these shelterbelts was almost twice as porous as the grazed side.

GRAZING CAUSES WATER LOSS

Experiments carried on by the Forest Service show that over a period of a year the water run-off from grazed farm woodlands may be as much as 50 times the volume from ungrazed woodlands. Studies made by the Soil Conservation Service in Nebraska showed that the soil in ungrazed woodlands was capable of absorbing over 22 inches of water in an hour. In grazed woodlands less than one inch of water was absorbed in an hour.

In Wisconsin the Forest Service and Soil Conservation Service recorded the run-off and soil losses from grazed and ungrazed woodland. During *one* storm, grazed woodland lost nine percent of the total rainfall through run-off and 1600 pounds of soil per acre. Ungrazed woodland lost less than one percent of the rainfall through run-off and 17 pounds of soil per acre.

Studies made in Indiana show that timber growth in farm woodlots is cut 50 percent by grazing. Logs taken from grazed woodlots also had a much higher percentage of defects than those taken from ungrazed woodlots.

GRAZING DESTROYS LEAF LITTER

Plantings protected from livestock, and cultivated until the trees grow together and shade out weeds, will form a layer of leaf mold on the ground. This layer holds moisture like a sponge and builds up organic matter in the soil. Drying of the soil surface by sun and wind is prevented. Grazing animals prevent the formation of leaf litter by trampling and by browsing off the lower

Ungrazed on the left—grazed on the right. Chokecherry shrub row on the right has been completely killed out. Chokecherry on the left forms a solid wind and snow barrier. (U. S. Forest Service photo)

Exposed roots and packed soil result from grazing. Packing destroys shallow feeder roots.

This shelterbelt provides little wind protection after grazing sheep destroyed lower limbs and underbrush.

leaves. They also kill off the lower branches and underbrush. Loss of lower leaves, branches and underbrush allows sun to bake the soil and wind to sweep leaf litter out of the planting.

Importance of leaf litter is shown by a statewide survey of South Dakota tree plantations made in 1935. Those plantings with a ground cover of leaf mold had 66 percent of their trees living; those with a cover of weeds, 51 percent; and those covered with grass, 46 percent.

GRAZING CUTS SHELTERBELT BENEFITS

South Dakota farmers estimate that grazing of shelterbelts cuts their ability to increase the yields of adjacent crops over 22 percent. This was brought out in a survey made by the Soil Conservation Service and State College Agricultural Experiment Station, covering 331 shelterbelts in 35 eastern South Dakota counties. Shelterbelts covered in the survey were also classified according to their condition into four classes: (1) Excellent (2) Very good (3) Good (4) Fair. Every shelterbelt in the "fair" class had been grazed by livestock.

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Put a stock-tight fence around your trees—then keep livestock on the *outside* of the fence.

Grazing has ruined this shelterbelt shrub row. Foliage is stripped off as high as the animals could reach.